

Examiner # (Mandatory): 59389 Requester's Full Name: Doug Butler  
Art Unit 3683 Location (Bldg/Room#): CPK5-6A13 Phone (circle ~~305-306-308~~) 703-308-2575  
Serial Number: 10/025,558 Results Format Preferred (circle): PAPER DISK E-MAIL  
Title of Invention Trailer Braking System  
Inventors (please provide full names): Clarence Michael Claerhout  
(I am attaching a copy of the application)  
Earliest Priority Date: 6/24/1999 Michael Clarence Claerhout  
Keywords (include any known synonyms registry numbers, explanation of initialisms):

303/20  
b606-013  
" -015

results fully  
considered  
Dozul  
4/18/03

#### Search Topic:

Please write detailed statement of the search topic, and the concept of the invention. Describe as specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples of relevant citations, authors, etc., if known. You may include a copy of the abstract and the broadcast or most relevant claim(s).

Brake sensor using piezoelectric structures which are laminated which respond to actuation of the brake pedal or treadle. Consider gas or clutch or accelerator pedals as related art. I have numerous laminated piezoelectric sensors but I need additional art where the foot pedal is involved.  
Thanks, no hurry!

#### STAFF USE ONLY

Searcher: Al Wesen-Randy  
Searcher Phone #: 306-5967  
Searcher Location: ETC 3600  
Date Picked Up: 4/21/03  
Date Completed: 4/21/03  
Clerical Prep Time: \_\_\_\_\_  
Terminal Time: \_\_\_\_\_  
Number of Databases: \_\_\_\_\_

#### Type of Search

\_\_\_\_ N.A. Sequence  
\_\_\_\_ A.A. Sequence  
\_\_\_\_ Structure (#)  
\_\_\_\_ Bibliographic  
\_\_\_\_ Litigation1  
\_\_\_\_ Fulltext  
\_\_\_\_ Procurement  
\_\_\_\_ Other

#### Vendors (include cost where applicable)

\_\_\_\_ STN  
\_\_\_\_ Questel/Orbit  
\_\_\_\_ Lexis/Nexis  
\_\_\_\_ WWW/Internet  
\_\_\_\_ In-house sequence systems (list)  
\_\_\_\_ Dialog  
\_\_\_\_ Dr. Link  
\_\_\_\_ Westlaw  
\_\_\_\_ Other (specify)

?show files;ds

File 348:EUROPEAN PATENTS 1978-2003/Apr W01

(c) 2003 European Patent Office

File 349:PCT FULLTEXT 1979-2002/UB=20030417,UT=20030410

(c) 2003 WIPO/Univentio

File 347:JAPIO Oct 1976-2002/Dec(Updated 030402)

(c) 2003 JPO & JAPIO

File 351:Derwent WPI 1963-2003/UD,UM &UP=200325

(c) 2003 Thomson Derwent

File 371:French Patents 1961-2002/BOPI 200209

(c) 2002 INPI. All rts. reserv.

Set	Items	Description
S1	4	AU='CLAERHOUT':AU='CLAERHOUT MICHAEL CLARENCE'
S2	4	IDPAT (sorted in duplicate/non-duplicate order)
S3	2	IDPAT (primary/non-duplicate records only)

3/3,K/1 (Item 1 from File: 351)  
DIALOG(R)File 351:Derwent WPI  
(c) 2003 Thomson Derwent. All rts. reserv.

013628195 \*\*Image available\*\*  
WPI Acc No: 2001-112403/200112  
XRPX Acc No: N01-082517

**Towed vehicle braking system**

Patent Assignee: CLAERHOUT M C (CLAE-I); SHARP J J (SHAR-I); CLARENCE M (CLAR-I)

Inventor: CLAERHOUT M C

Number of Countries: 095 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200100467	A1	20010104	WO 2000NZ110	A	20000623	200112 B
AU 200057186	A	20010131	AU 200057186	A	20000623	200124
EP 1192068	A1	20020403	EP 2000942583	A	20000623	200230
			WO 2000NZ110	A	20000623	
BR 200012453	A	20020521	BR 200012453	A	20000623	200238
			WO 2000NZ110	A	20000623	
US 20020093245	A1	20020718	WO 2000NZ110	A	20000623	200254
			US 200125558	A	20011226	

Priority Applications (No Type Date): NZ 336471 A 19990624

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

WO 200100467	A1	E	22	B60T-007/20	
--------------	----	---	----	-------------	--

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA  
CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP  
KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT  
RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR  
IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200057186	A			B60T-007/20	Based on patent WO 200100467
--------------	---	--	--	-------------	------------------------------

EP 1192068	A1	E		B60T-007/20	Based on patent WO 200100467
------------	----	---	--	-------------	------------------------------

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT  
LI LT LU LV MC MK NL PT RO SE SI

BR 200012453	A			B60T-007/20	Based on patent WO 200100467
--------------	---	--	--	-------------	------------------------------

US 20020093245	A1			B60T-007/20	Cont of application WO 2000NZ110
----------------	----	--	--	-------------	----------------------------------

Inventor: CLAERHOUT M C

3/3,K/2 (Item 2 from file: 371)

000761178 \*\*Image available\*\*

**Title: APPUI METALLIQUE A DISQUE POUR OUVRAGE DU GENIE CIVIL**

Patent Applicant/Assignee: LABORATOIRES CINEMATIQUE NV

Inventor(s): GHISLAIN CLAERHOUT

Legal Representative: CABINET BEAU DE LOMENIE

Document Type: Patent / Brevet

Patent and Priority Information (Country, Number, Date):

Patent: FR 2570725 - 19860328

Application: FR 8514382 - 19850927

Priority Application: BE 900693 - 19840927

Legal Status (Type, Action Date, BOPI No, Description):

Publication 19860328 8613 Date published

Search Report 19880108 8801 Date Search Report published

Grant 19881028 8843 Date granted

Lapse 19900531 Date lapsed

Inventor(s): GHISLAIN CLAERHOUT

?show files;ds  
 File 347:JAPIO Oct 1976-2002/Dec(Updated 030402)  
 (c) 2003 JPO & JAPIO  
 File 351:Derwent WPI 1963-2003/UD,UM &UP=200325  
 (c) 2003 Thomson Derwent  
 File 371:French Patents 1961-2002/BOPI 200209  
 (c) 2002 INPI. All rts. reserv.

Set	Items	Description
S1	200341	BRAKE? ? OR BRAKING
S2	2441913	SENS?R? ? OR DETECT??? OR SENSE OR PERCEIV??? OR RECOGNI? - OR DISTINGUISH??? OR FIND???
S3	1912965	LAMINAT?? OR LAYER?? OR VENEER?? OR (2 OR TWO OR 3 OR THREE OR 4 OR FOUR)() (PLY OR PLYS OR PLIES) OR THERMAL??()PRESSUR? OR LAMELLAR OR LAMELLIFORM OR LAMELLATE OR LAMINAT?? OR LAMIN- AR OR LAMINOSE OR STRATIFIED OR STRATIFORM
S4	154133	PIEZOELECTRIC? OR PIEZO()ELECTRIC???
S5	46268	PEDAL? ? OR TREADLE? ? OR FOOT(2N) (LEVER? ? OR CRANK? ?)
S6	1666033	CLUTCH OR GAS OR ACCELERAT? OR SHIFT
S7	6539	S1(2N)S2
S8	22794	(S1 OR S6) (2N)S5
S9	7928	S3(5N)S4
S10	0	S7(10N)S9
S11	0	S8(S)S10
S12	2	S5(10N)S9
S13	18545	IC=(B60T-013? OR B60T-015?)
S14	4	S9 AND S13
S15	4	S12 OR S14 /
S16	4	IDPAT (sorted in duplicate/non-duplicate order)
S17	3	IDPAT (primary/non-duplicate records only)

17/3,K/1 (Item 1 from file: 351)  
DIALOG(R)File 351:Derwent WPI  
(c) 2003 Thomson Derwent. All rts. reserv.

013805483 \*\*Image available\*\*  
WPI Acc No: 2001-289695/200130  
XRPX Acc No: N01-206903

**Electrical braking system for use in automotive wheels, generates braking force, when electrically energized piezoelectric actuator contacts brake disk, in response to generated brake force demand input signal**

Patent Assignee: FACE INT CORP (FACE-N)

Inventor: FACE S A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6213564	B1	20010410	US 97834233	A	19970415	200130 B
			US 99272908	A	19990319	

Priority Applications (No Type Date): US 99272908 A 19990319; US 97834233 A 19970415

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6213564	B1	10	H01L-041/08	CIP of application US 97834233	

Abstract (Basic):

... The **piezoelectric** actuator has a **piezoelectric** ceramic **layer** and a prestress **layer** bonded with a major face of the ceramic layer. The prestress layer applies a compressive...

International Patent Class (Additional): **B60T-013/00**

17/3,K/2 (Item 2 from file: 351)  
DIALOG(R)File 351:Derwent WPI  
(c) 2003 Thomson Derwent. All rts. reserv.

013628195 \*\*Image available\*\*  
WPI Acc No: 2001-112403/200112  
XRPX Acc No: N01-082517

**Towed vehicle braking system**

Patent Assignee: CLAERHOUT M C (CLAE-I); SHARP J J (SHAR-I); CLARENCE M (CLAR-I)

Inventor: CLAERHOUT M C

Number of Countries: 095 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200100467	A1	20010104	WO 2000NZ110	A	20000623	200112 B
AU 200057186	A	20010131	AU 200057186	A	20000623	200124
EP 1192068	A1	20020403	EP 2000942583	A	20000623	200230
			WO 2000NZ110	A	20000623	
BR 200012453	A	20020521	BR 200012453	A	20000623	200238
			WO 2000NZ110	A	20000623	
US 20020093245	A1	20020718	WO 2000NZ110	A	20000623	200254
			US 200125558	A	20011226	

Priority Applications (No Type Date): NZ 336471 A 19990624

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

WO 200100467	A1	E	22	B60T-007/20	
--------------	----	---	----	-------------	--

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200057186	A			B60T-007/20	Based on patent WO 200100467
--------------	---	--	--	-------------	------------------------------

EP 1192068 A1 E B60T-007/20 Based on patent WO 200000467  
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT  
LI LT LU LV MC MK NL PT RO SE SI  
BR 200012453 A B60T-007/20 Based on patent WO 200100467  
US 20020093245 A1 B60T-007/20 Cont of application WO 2000NZ110

Abstract (Basic):

... piezoelectric laminate (22  
International Patent Class (Additional): B60T-013/66

17/3,K/3 (Item 3 from file: 351)  
DIALOG(R)File 351:Derwent WPI  
(c) 2003 Thomson Derwent. All rts. reserv.

009095143 \*\*Image available\*\*  
WPI Acc No: 1992-222569/199227  
XRPX Acc No: N92-169258

Brake system for automobile - converts pressure of brake pedal to  
electric signal by piezoelectric element, and applies signal to layer  
build braking piezoelectric actuator in wheel NoAbstract

Patent Assignee: TOYOTA JIDOSHA KK (TOYT )  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 4146866	A	19920520	JP 90271379	A	19901009	199227 B

Priority Applications (No Type Date): JP 90271379 A 19901009

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 4146866	A	8	B60T-013/66	

... converts pressure of brake pedal to electric signal by  
piezoelectric element, and applies signal to layer build braking  
piezoelectric actuator in wheel NoAbstract  
International Patent Class (Main): B60T-013/66

?show files;ds  
 File 35:Dissertation Abs Online 1861-2003/Mar  
 (c) 2003 ProQuest Info&Learning  
 File 65:Inside Conferences 1993-2003/Apr W2  
 (c) 2003 BLDSC all rts. reserv.  
 File 8:Ei Compendex(R) 1970-2003/Apr W1  
 (c) 2003 Elsevier Eng. Info. Inc.  
 File 96:FLUIDEX 1972-2003/Apr  
 (c) 2003 Elsevier Science Ltd.  
 File 118:ICONDA-Intl Construction 1976-2003/Mar  
 (c) 2003 Fraunhofer-IRB  
 File 2:INSPEC 1969-2003/Apr W2  
 (c) 2003 Institution of Electrical Engineers  
 File 94:JICST-EPlus 1985-2003/Apr W3  
 (c) 2003 Japan Science and Tech Corp(JST)  
 File 144:Pascal 1973-2003/Apr W2  
 (c) 2003 INIST/CNRS  
 File 111:TGG Natl.Newspaper Index(SM) 1979-2003/Apr 17  
 (c) 2003 The Gale Group  
 File 323:RAPRA Rubber & Plastics 1972-2003/Apr  
 (c) 2003 RAPRA Technology Ltd  
 File 34:SciSearch(R) Cited Ref Sci 1990-2003/Apr W2  
 (c) 2003 Inst for Sci Info  
 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec  
 (c) 1998 Inst for Sci Info  
 File 48:SPORTDiscus 1962-2003/Apr  
 (c) 2003 Sport Information Resource Centre  
 File 63:Transport Res(TRIS) 1970-2003/Mar  
 (c) fmt only 2003 Dialog Corp.  
 File 25:Weldasearch 1966-2002/Oct  
 (c) 2003 TWI Ltd  
 File 99:Wilson Appl. Sci & Tech Abs 1983-2003/Mar  
 (c) 2003 The HW Wilson Co.  
 File 31:World Surface Coatings Abs 1976-2003/Mar  
 (c) 2003 Paint Research Assn.  
 File 6:NTIS 1964-2003/Apr W3  
 (c) 2003 NTIS, Intl Cpyrght All Rights Res  
 File 266:FEDRIP 2003/Feb  
 Comp & dist by NTIS, Intl Copyright All Rights Res  
 File 87:TULSA (Petroleum Abs) 1965-2003/Apr W3  
 (c) 2003 The University of Tulsa

Set	Items	Description
S1	56554	BRAKE? ? OR BRAKING
S2	5678505	SENS?R? ? OR DETECT??? OR SENSE OR PERCEIV??? OR RECOGNI? -
		OR DISTINGUISH??? OR FIND???
S3	2398264	OR LAMINAT?? OR LAYER?? OR VENEER?? OR (2 OR TWO OR 3 OR THREE
		OR 4 OR FOUR) ( ) (PLY OR PLYS OR PLIES) OR THERMAL?? ( ) PRESSUR?
		OR LAMELLAR OR LAMELLIFORM OR LAMELLATE OR LAMINAT?? OR LAMIN-
		AR OR LAMINOSE OR STRATIFIED OR STRATIFORM
		PIEZOELECTRIC? OR PIEZO()ELECTRIC???
		PEDAL? ? OR TREADLE? ? OR FOOT(2N) (LEVER? ? OR CRANK? ?)
		CLUTCH OR GAS OR ACCELERAT? OR SHIFT
S4	126614	
S5	8043	
S6	3594933	S1(2N)S2
S7	518	(S1 OR S6) (2N)S5
S8	1175	S3(5N)S4
S9	6057	S7(10N)S9
S10	0	S8(S)S10
S11	0	S1(5N)S5
S12	769	S9(10N)S12
S13	0	S9 AND S12
S14	0	S1(S)S9
S15	4	S15 NOT PY>1999
S16	3	S16 NOT PD=19990625:20030531
S17	3	
S18	1	RD (unique items)

18/5/1 (Item 1 from file: 8)  
DIALOG(R) File 8: Ei Compendex(R)  
(c) 2003 Elsevier Eng. Info. Inc. All rts. reserv.

04996279 E.I. No: EIP98044167359

Title: Development of an electronically controlled disc brake noise canceling system

Author: Nishizawa, Yukio; Saka, Hironobu; Nakajima, Shiro

Source: SEI Technical Review n 45 Jan 1998. p 145-151

Publication Year: 1998

CODEN: 002841 ISSN: 1343-4349

Language: English

Document Type: JA; (Journal Article) Treatment: T; (Theoretical)

Journal Announcement: 9806W3

Abstract: With the recent increase in demand for the enhanced comfort and quietness of automobiles, reducing the squeal arising at **brake** actuation is an important task. However, the squeal results from a variety of complex factors. This phenomenon is therefore difficult to analyze and has required lengthy investigation. To solve this problem, we have developed a squeal control system, ECCN (Electronic Control Canceling system for disc **brake** Noise) based on the innovative approach of restraining squeals via electronic control. Rotor vibration is generally thought to be the sound source, and using electronic control to suppress the squeal is the basic principle of ECCN. In this research we explored the application of ECCN to the opposed-type disc **brake** with four **brake** pistons. ECCN is basically composed of four 5 multiplied by 5 multiplied by 10 mm **laminated piezoelectric** elements and electronic control circuits. Each of these elements is incorporated in a **brake** piston and pressed against the pad via line pressure. They have been used both as sensors to detect the rotor vibration and as actuators to control this vibration. Through the control circuits, the signal to drive the actuators obtain from the signals detected by the sensors. We have succeeded in controlling 2.3 kHz low-frequency squeals, and have also confirmed that such squeals can be suppressed with as little as 0.2 mW of power. (Author abstract) 4 Refs.

Descriptors: \*Electric brakes; Piezoelectric devices; Control system analysis; Pistons; Rotors; Vibrations (mechanical); Sensors

Identifiers: Electronic control canceling system for disc brake noise (ECCN)

Classification Codes:

612.1.1 (Internal Combustion Engine Components)

731.1 (Control Systems); 612.1 (Internal Combustion Engines, General);

601.1 (Mechanical Devices); 931.1 (Mechanics)

602 (Mechanical Drives & Transmissions); 704 (Electric Components & Equipment); 731 (Automatic Control Principles); 612 (Combustion Engines);

601 (Mechanical Design); 931 (Applied Physics)

60 (MECHANICAL ENGINEERING); 70 (ELECTRICAL ENGINEERING); 73 (CONTROL ENGINEERING); 61 (PLANT & POWER ENGINEERING); 93 (ENGINEERING PHYSICS)



?show files;ds

File 15:ABI/Inform(R) 1971-2003/Apr 21  
(c) 2003 ProQuest Info&Learning  
File 9:Business & Industry(R) Jul/1994-2003/Apr 18  
(c) 2003 Resp. DB Svcs.  
File 47:Gale Group Magazine DB(TM) 1959-2003/Apr 17  
(c) 2003 The Gale group  
File 621:Gale Group New Prod.Annou.(R) 1985-2003/Apr 18  
(c) 2003 The Gale Group  
File 148:Gale Group Trade & Industry DB 1976-2003/Apr 18  
(c)2003 The Gale Group  
File 98:General Sci Abs/Full-Text 1984-2003/Mar  
(c) 2003 The HW Wilson Co.  
File 624:McGraw-Hill Publications 1985-2003/Apr 18  
(c) 2003 McGraw-Hill Co. Inc  
File 483:Newspaper Abs Daily 1986-2003/Apr 19  
(c) 2003 ProQuest Info&Learning  
File 484:Periodical Abs Plustext 1986-2003/Apr W2  
(c) 2003 ProQuest  
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13  
(c) 2002 The Gale Group  
File 95:TEME-Technology & Management 1989-2003/Mar W5  
(c) 2003 FIZ TECHNIK  
File 553:Wilson Bus. Abs. FullText 1982-2003/Mar  
(c) 2003 The HW Wilson Co

*full text  
NPL files*

Set	Items	Description
S1	122567	BRAKE? ? OR BRAKING
S2	5578947	SENS?R? ? OR DETECT??? OR SENSE OR PERCEIV??? OR RECOGNI? - OR DISTINGUISH??? OR FIND???
S3	541090	LAMINAT?? OR LAYER?? OR VENEER?? OR (2 OR TWO OR 3 OR THREE OR 4 OR FOUR)() (PLY OR PLYS OR PLIES) OR THERMAL??()PRESSUR? OR LAMELLAR OR LAMELLIFORM OR LAMELLATE OR LAMINAT?? OR LAMIN- AR OR LAMINOSE OR STRATIFIED OR STRATIFORM
S4	14017	PIEZOELECTRIC? OR PIEZO()ELECTRIC???
S5	28798	PEDAL? ? OR TREADLE? ? OR FOOT(2N) (LEVER? ? OR CRANK? ?)
S6	2511411	CLUTCH OR GAS OR ACCELERAT? OR SHIFT
S7	1294	S1(2N)S2
S8	5784	(S1 OR S6) (2N)S5
S9	624	S3(5N)S4
S10	0	S7(10N)S9
S11	0	S8(S)S10
S12	6368	(S1 OR S6) (5N)S5
S13	0	S12(10N)S9
S14	0	S9 AND S12 .
S15	47	S4 AND S5
S16	12	S12 AND S15
S17	12	S4 AND S12 /
S18	9	S17 NOT PY>1999
S19	9	S18 NOT PD=19990625:20030531
S20	7	RD (unique items)

20/3,K/1 (Item 1 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2003 ProQuest Info&Learning. All rts. reserv.

01063500 97-12894

**Spin control for cars**

Ashley, Steven  
Mechanical Engineering v117n6 PP: 66-68 Jun 1995  
ISSN: 0025-6501 JRNL CODE: MEG  
WORD COUNT: 2391

...ABSTRACT: A stability control system senses the driver's desired motion from the steering angle, the **accelerator pedal** position, and the **brake** pressure while determining the vehicle's actual motion from the yaw rate (vehicle rotation about...

...TEXT: A stability control system senses the driver's desired motion from the steering angle, the **accelerator pedal** position, and the **brake** pressure while determining the vehicle's actual motion from the yaw rate (vehicle rotation about... that serves as the measuring element. The thin wall of the cylinder is excited with **piezoelectric** elements that vibrate at a frequency of 15 kilohertz. Four pairs of these piezo elements...

20/3,K/2 (Item 1 from file: 47)  
DIALOG(R)File 47:Gale Group Magazine DB(TM)  
(c) 2003 The Gale group. All rts. reserv.

03991375 SUPPLIER NUMBER: 14246372 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Smart turn signal. (turn-signal alert device)**  
Sweeney, David J.  
Electronics Now, v64, n9, p63(3)  
Sept, 1993  
ISSN: 1067-9294 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 1285 LINE COUNT: 00091

...ABSTRACT: could be easily installed in automobiles and required minimal integration with the ordinary flasher and **brake - pedal** system.

... keep C1 discharged and pin 3 high.

When the driver's foot is on the **brake pedal**, 12 volts is applied to the anode of D1. Capacitor C1 then quickly charges through...timer D1, D2--1N914 diode Q1--2N2023 PNP transistor Q2--IRF511 FET Other components BZ1-- **Piezoelectric** buzzer (Radio

Shack RS273-066 or equivalent) Miscellaneous: PC board, turn-signal flasher, 35 mm...

20/3,K/3 (Item 2 from file: 47)  
DIALOG(R)File 47:Gale Group Magazine DB(TM)  
(c) 2003 The Gale group. All rts. reserv.

03791788 SUPPLIER NUMBER: 12660541 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**It's in the bag. (air bags; Auto Tech '93)(includes related articles on other automobile safety features and safety research) (Cover Story)**  
Sherman, Don; Callahan, Joe; Normile, Dennis; Mayersohn, Norman  
Popular Science, v241, n4, p58(6)  
Oct, 1992  
CODEN: POSCD DOCUMENT TYPE: Cover Story ISSN: 0161-7370  
LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 4265 LINE COUNT: 00333

... Farmington Hills, Mich., has a device that combines several elements in one compact module: a **piezoelectric** accelerometer, a backup power source for the igniter, and electronic circuits to trigger air-bag... car to be electronically controlled required some reworking of other systems. The cable connecting the **accelerator pedal** to the throttle was

replaced by an electronic system. And an electronically controlled vacuum actuator...

...already commercialized that monitors a driver's grip on the wheel and pressure on the **accelerator pedal**. It sounds an alarm if it detects patterns common to falling asleep. Nippondenso Co., a...

20/3,K/4 (Item 1 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2003 The Gale Group. All rts. reserv.

10591781 SUPPLIER NUMBER: 53176066 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Toyota Progress. (Overview)**  
Yamaguchi, Jack  
Automotive Engineering International, NA  
Oct 1, 1998  
DOCUMENT TYPE: Overview LANGUAGE: English RECORD TYPE: Fulltext;  
Abstract  
WORD COUNT: 1719 LINE COUNT: 00141

... realize optimum passenger accommodation, maneuverability, and superior dynamics. The interior's coupling distance, from the **accelerator pedal** face to the rear seat hip-point, is also identical with the Crown at 1775...spherical surfaces strengthening the structure and preventing powerplant bending. The block is fitted with two **piezoelectric** knock-sensors. A forged steel crankshaft is fully balanced with 12 balance weights and supported...

20/3,K/5 (Item 2 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2003 The Gale Group. All rts. reserv.

07512502 SUPPLIER NUMBER: 15728205 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Reader's choice: top 50 products of '93.**  
Automotive Engineering, v102, n8, p65(11)  
August, 1994  
ISSN: 0098-2571 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 5274 LINE COUNT: 00431

... angular-rate inertial sensor, is a high-performance accelerometer. GyroChip is a single piece of **piezoelectric** quartz in the shape of a double-ended tuning fork which uses the Coriolis effect...monitoring of cylinder pressures on large-bore diesel engines. The welded, hermetic case and quartz **piezoelectric** sensing elements ensure long-term stability and operation. Monitoring critical parameters such as peak pressure... technology extends the life of sensors used for positioning the throttle, EGR, chassis height, electronic **accelerator pedal**, and steering wheel under the extreme heat and jarring vibrations of life on the road...loss, and especially thin elements result in minimal weight while retaining strength and anticut characteristics.

**Piezoelectric** force sensors

Dynamic quartz, **piezoelectric** force sensors from PCB Piezotronics, Inc. are used for monitoring standard compression ranges from 45...

20/3,K/6 (Item 3 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2003 The Gale Group. All rts. reserv.

06510830 SUPPLIER NUMBER: 13920464 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Volvo fuel injection.**  
Motor Age, v112, n6, p47(6)  
June, 1993

ISSN: 0193-7022      LANGUAGE: ENGLISH      RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 2235      LINE COUNT: 00172

... measured by the hot wire air mass meter, and the TPS (Throttle Position Sensor) supplies **accelerator pedal** information. Sharing its information with the overall engine control network, the ECU sends both signals...to B230F, B204GT/FT).

To control ping or knock, the knock is heard thanks to **piezoelectric** sensing nestled in the engine block. When the driver cranks the engine, the ECU starts...

20/3,K/7      (Item 4 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c)2003 The Gale Group. All rts. reserv.

04806163      SUPPLIER NUMBER: 08761824      (USE FORMAT 7 OR 9 FOR FULL TEXT)  
**Proven techniques and new technologies widen sensor horizons.**

Swager, Anne Watson  
EDN, v35, n15, p126(8)  
July 19, 1990

ISSN: 0012-7515      LANGUAGE: ENGLISH      RECORD TYPE: FULLTEXT; ABSTRACT  
WORD COUNT: 3891      LINE COUNT: 00311

... alternatives for low-precision and low-cost sensing applications.

Atochem North America (formerly Pennwalt) uses **piezoelectric** polymer film to produce a variety of sensors. The company recently introduced an inexpensive-under \$10 in high volumes-general-purpose accelerometer. The ACH 01 has an alumina substrate, **piezoelectric** -film element, and brass mass. The device sandwiches a multilayered **piezoelectric** film between the brass mass and alumina substrate; the mass serves as one of the...

...In fact, the device's first use in music keyboards lent it the nickname "electronic **gas pedal** ." The sensing element of these force-sensing resistors is a polymer thick film whose resistance...